

THEODORE JEFFREY ST.JOHN, Ph.D.

LCDR, MSC, USN

10401 Peak View Ct. Damascus, MD 20872

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Home: (301) 414 - 0080

➤ **CIVILIAN EDUCATION**

Doctor of Philosophy in Medical Physics (Aug 1999 - Aug 2002)

The University of Florida, Gainesville, FL. Dept of Nuclear and Radiological Engineering. Courses include interactions of radiation with matter, radiation biology, radiation detection and instrumentation, radiation dosimetry, radiation transport theory, radiation therapy, diagnostic medical physics, nuclear medicine, and statistical analysis. Dissertation on application of miniature multi-leaf collimator for x-ray beam shaping and intensity-modulation: *Intensity-Modulated Radiosurgery Treatment Planning by Fluence-mapping Optimized Multi-isocenter Plans.*

Graduate GPA: 4.0/4.0

Master Of Science In Physics: (Aug 1993 - Aug 1995)

The University of Southwestern Louisiana, Lafayette, LA Courses include Classical Mechanics, Statistical Mechanics, Quantum Mechanics, and Electromagnetic Theory. Thesis on application of ion implantation and ion beam analysis: *Surface Oxygen Implanted in Titanium by Recoil Collisions with 1 MeV Gold Ions.*

Graduate GPA: 3.46/4.0

Senior Nuclear Reactor Operator (SRO): (Jul 1989 - Feb 1991)

Florida Power and Light Nuclear Training Center. Courses included Reactor Theory, Thermodynamics, Power Plant Systems, Technical Specifications, Instrumentation and Controls, Normal and Emergency Operating Procedures, Health Physics and Radiological Controls, Supervisory Training, First Aid and CPR. Training involved both classroom lectures, in-plant sessions, and 9 weeks of operator practice in simulator. Received license from the Nuclear Regulatory Commission (License # SOP-20959, Docket # 55-21457) to operate and supervise operation of Turkey Point 720 Mw reactor power plants.

Bachelor Of Science In Physics: (Aug 1980 - Aug 1984)

Jacksonville University, Jacksonville, FL

Graduated Cum Laude GPA: 3.73/4.0

Bachelor Of Science In Electrical Engineering: (Aug 1980 - Aug 1984)

Florida Institute of Technology, Melbourne, FL Dual-degree program with Jacksonville University. Successfully completed Engineer Intern exam (EIT) upon graduation in 1984 (License #620731)

Graduated With High Honor GPA: 3.71/4.0

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➤ U.S. NAVY EDUCATION

Navy Leadership Advanced Officer Training Course (16 – 27 Sep 2002)

NLTU Little Creek VA. Didactic training at the department head level including foundations of leadership, communications, subordinate development, system and process management, decision-making, effect of command environment and crisis and combat leadership.

The Medical Officers' Course in Nuclear Medicine and Radioisotope Techniques

(15 Feb – 19 Mar 99) National Naval Medical Center, Bethesda, MD. 200 hours of didactic and practical medical physics training, which satisfies the NRC requirements for qualification as a hospital Radiation Safety Officer. Course # 9902

Radiation Safety Officer Course (26 Apr – 7 May 99)

Naval Sea System Command Detachment, Radiological Affairs Support Office, Yorktown, VA. 80 hour of training in aspects of radiation safety practices and regulations, including the requirements of NAVSEA S0420-AA-RAD-010 and Radiological Affairs Support Program for qualification as a Navy Radiation Safety Officer (industrial). Course #S-4J-0016

RHO Basic Diagnostic Medical Physics Course: (Apr 98)

National Naval Medical Center, Bethesda, MD. 56 hours of didactic and practical medical physics training which meets the requirements of Level II- Intermediate Radiological Systems Surveyor as specified by the Navy Radiological Systems Performance Evaluation Manual.

Senior Officer Nuclear Accident Course: (Aug 97)

Defense Nuclear Weapons School, Kirtland AFB, Albuquerque, NM. A three day course on senior officer command and control of national assets in response to an accident involving nuclear weapons or radioactive material.

Medical Effects of Nuclear Weapons: (Sep 96)

Armed Forces Radiobiology Research Institute, Bethesda, MD. A four day course including classroom and hands-on training. Topics included principles of ionizing radiation, cellular radiobiology, acute radiation syndrome, biodosimetry, internal contamination and late effects of radiation.

Senior Investigator Radiation Safety Training Course: (Mar 96)

Armed Forces Radiobiology Research Institute, Bethesda, MD. Fifteen hours of classroom and practical training on the proper use and handling of radioactive material for senior scientific investigators.

Radiation Health Officer (RHO): (Nov - Dec 95)

Naval Undersea Medical Institute, Groton CT. Curriculum included Radiation Physics and Instrumentation, Radiation Protection, Radiation Biology, Radiopharmaceutical Chemistry, and Mathematics pertaining to the use and Measurement of Radioactivity.

Quality Assurance Officer School: (Mar 88)

Naval Base Charleston, SC. Completed in top 10% of class. Five day course; covered procedures and requirements for ensuring that all vital submarine systems, including reactor primary coolant and water-tight submarine seawater systems, were maintained in top operating condition. This included strict administrative and supervisory controls to ensure that maintenance on these systems was performed and radiological controls were maintained within stringent guidelines.

Nuclear Ballistic Missile Officer School: (Feb 86 - May 86)

Intense course in the theory, operation and control (including casualty control) of the Trident C-4 fleet ballistic missile system. Included instruction and practical experience in special technology pertaining to digital computers, missile systems, launching systems, reentry body systems, fire control and targeting systems.

Naval Officer Submarine School: (Nov 85 - Feb 86)

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Fundamentals of submarine operations, damage control and safety, instrumentation and controls, quality assurance and tactics.

Leadership And Management Education And Training (LMET)

Training session during assignment to submarine officer school.

Navy Nuclear Power Prototype Training Program: (Apr 85 - Oct 85)

Intense, closely supervised 6 month training program at S1W Nuclear Propulsion plant in Idaho Falls, ID which enhanced foundations of nuclear power operating principles and procedures. Successfully completed qualification requirements ahead of schedule.

Navy Nuclear Power Training Program: (Aug 84 - Oct 85)

Considered a complex graduate level 24 week engineering course which teaches the principles of science and engineering in the supervision, operation and maintenance of Naval nuclear propulsion plants. Successfully completed all requirements in the top 10 % among carefully screened and selected officers of exceptionally high caliber.

Naval Nuclear Power (Enlisted) School: (Mar 80 - Aug 80)

Attended course for 13 weeks of classroom instruction and was awarded a Naval Reserve Officer Training Corps (NROTC) college scholarship prior to completion.

Navy Electronics Technician: (Jun 79 - Mar 80)

Completed course in electronics top in class (1 of 16) and was promoted to E-4 immediately upon graduation. Received classroom and practical training in theory, operation, troubleshooting and repair of navy electronic communications and radar equipment.

Navy Basic Electronics And Electricity School: (Jul 79 - Aug 79)

Completed self-paced course in fundamental theory, operation and troubleshooting of basic electronic circuits, well ahead of scheduled requirement.

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➤ **EXPERIENCE**

Health Physics

U.S. Navy Radiation Health Officer; Armed Forces Radiobiology Research Institute, Bethesda, Safety and Health Department, Health Physics Division MD. Oct 1998 – Jul 1999.

- Assistant Radiation Safety Officer satisfied qualification requirements for RSO. Performed and supervised area radiation and contamination surveys, reactor exposure room entries and analysis of radioactive materials. Presented general employee radiation safety training.

Radiation Sciences Department, Operational Dosimetry Division. Dec 1995 – Oct 1998.

- **Radiation dosimetry:** Performed measurements of radiation fields including mixed gamma-neutron from TRIGA reactor, Co-60 gamma, X ray and electron beams for research. Installed, programmed and tested PC-based “Virtual Instrument system” using LabView™ for data acquisition, analysis and presentation.
- **Instructor:** Taught several portions of the **Medical Effects of Ionizing Radiation course** including Physical Principles of Ionizing Radiation, Radioactive Fallout, and Radiation Protection. This course is taught to physicians and other health professionals worldwide. Also gave lectures on the interactions of radiation with matter as invited speaker for the **Medical Officers Course in Nuclear Medicine and Radioisotope Techniques** and the **Radiation Health Officers' Course in Basic Diagnostic Medical Physics** at the National Naval Medical Center.
- **Scientist:** Performed microdosimetry using Monte Carlo techniques with complex computer program as a member of the **Depleted Uranium Research Team**.
- **Health Physics Advisor:** Conducted site restoration analysis and provided health physics services for nuclear weapons and reactor accident exercises conducted worldwide as part of the Defense Special Weapons Agency's **Defense Nuclear Advisory Team**.
- **Analyst:** A member of the **Nuclear, Biological and Chemical (NBC) Combined Effects Research Team**, performed atmospheric transport calculations using the computer modeling programs, Hazards Prediction and Assessment Capability (HPAC) and Consequence Assessment Tool Set (CATS).

Medical Physics

- **Volunteer:**
 - Jul 2000 – Aug 2002. Assisted in the performance of weekly stereotactic radiosurgery (SRS) treatments delivered to human patients with intracranial tumors. Also operated the Varian 600C LINAC for SRS on animal patients in collaboration with UF Veterinary College.
 - Apr 1998 – Jul 1999. Over 100 hours in Radiology department at the National Naval Medical Center, conducting QC surveys and data analysis on diagnostic and therapy x-ray machines, under the supervision of a certified Medical Physicist. Participated in the acceptance testing of the CT system installed onboard the naval hospital ship, USNS Comfort.

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Atomic Physics Research Assistant Aug 1993 - Aug 1995

Assistant to Dr. G. A. Glass, Sr. Associate Physics Professor at The University of SW Louisiana.

- Conducted research including high energy ion implantation, thin layer analysis and implanted ion profile studies using Rutherford Backscattering Spectrometry (RBS), material elemental analysis using Particle-Induced X-Ray Emission (PIXE), and corrosion studies of metals implanted with various ions.
- Assisted with operation and maintenance of NEC 5SDH-2 1.7 MeV Tandem Pelletron Accelerator, design and manufacture of experimental apparatus, and conducting RBS and PIXE experiments. Specialized in RBS spectrum interpretation, gave presentations at Louisiana Academy of Science annual conferences, DOE conferences and USL seminars explaining the RBS theory and application.

Physics Lab Instructor and Physics Tutor Aug 1994 - Aug 1995

Performed duties as instructor of second semester calculus-based physics labs. Duties included set-up of experiments, 30-45 min. lecture on weekly lab experiment, supervise and assist of students conducting lab, and administer exams.

Nuclear Power Plant Supervisor, Operator and Instructor Jun 1984 - Aug 1992:

- **Outage Planning Engineer** Feb 1992 - Aug 1992: Supervised and conducted planning and scheduling of Farley Nuclear Power Plant refueling outage using computer based scheduling program.
- **Senior Nuclear Reactor Operator (SRO)** Aug 1989 - Feb 1992: Designated Senior Nuclear Plant Operator (SNPO) when hired (08/89) and promoted to SRO when licensed by the Nuclear Regulatory Commission in Feb 91. License #SOP-20959, Docket #55-21457 Turkey Point Nuclear Power Station, Unit 3&4: 720 MW Westinghouse 3 loop pressurized water reactor.
 - **Steady-state operations:** Duties included performance and supervision of surveillance & operations procedures required to maintain full power operation of reactor plant, and supply 720 MW of electric power to FP&L transmission system. Coordinated operations of five-person crew with maintenance requirements of numerous maintenance personnel.
 - **Shut-down operations:** Participated in the performance of an extensive, dual-unit emergency power enhancement outage, which was completed ahead of schedule and under budget. Personally performed and supervised many operations and surveillance procedures, system alignments, equipment clearance orders, and new & irradiated fuel handling procedures during core off and on-load.
 - **Start-up operations:** Performed initial start-up at completion of outage. Conducted equipment post-maintenance/modification and start-up testing, reactor coolant system fill, vent, pressurization, heat-up and reactor and secondary plant start-up.
 - **Off-normal operations:** Responded to numerous abnormal occurrences requiring the use of off-normal and emergency operating procedures (ONOP's and EOP's), during actual power operations as well as during extensive simulator training.
 - **Operations support:** Procedure writing, new procedure review and walk-downs with system engineers, training material review and approval. Conducted numerous post-maintenance in-service tests (IST) and inspections (ISI).
 - **Instructor:** Certified as on-the-job training instructor. Duties included in-plant training of senior nuclear plant operations students.
- **U.S. Navy Nuclear Submarine Officer (Lieutenant O-3)** Aug 1984 - Aug 1989: Qualified senior operations watch-officer in the ballistic missile submarine nuclear propulsion plant. Completed three years of operational sea duty, and conducted daily reactor operations without incident or accident.

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➤ **Management Experience**

In addition to the managerial roles of nuclear power positions, I spent four years as Division Officer, responsible for varying numbers (5 – 20) of enlisted personnel while in the Navy. The following is a list of the positions held:

- Electrical Division Officer, Deck Division Officer, Sonar Division Officer, Torpedo Division Officer, Torpedo Fire Control Officer, Ballistic Missile Officer, Missile Fire Control Officer, Mechanical Division Officer, and Auxiliary Mechanical Division Officer.

Other positions of great responsibility include Duty Officer and Watch Officer, which are officers responsible for ship's safety and other duties vital to national security. Positions held include the following:

- Ship's Duty Officer, Weapons Duty Officer, Officer of the Deck, Ship's Diving Officer, Quality Assurance Officer, Controlled Materials (Top Secret) Officer, and Seal Authenticator System (SAS) Officer.

Department Head Assistant positions held:

- Damage Control Assistant, Main Propulsion Assistant, and Assistant Weapons Officer.

➤ **COMPUTER SKILLS**

Proficient in the use of MatLab, MathCAD, MS Access data base program, and spreadsheets such as MS Excel and Quattropro. Programming capabilities include MatLab, Basic, Maple, FORTRAN, C and Visual Basic, spreadsheet macros and DOS commands. Experienced with data acquisition and analysis programs including National Instruments' LabView and software for multi-channel analyzers, ion-chamber dosimetry, Particle-induced X-ray Emission (PIXE), and Rutherford Backscattering Spectrometry (RBS). Competent user of ArcView Geographic Information System, Harvard F/X, CorelDraw, Sketch, and Power Point graphics programs, word processing including MS Word and Word Perfect.

➤ **SELECTED HONORS AND AWARDS**

- ***Joint Service Commendation Medal***

For meritorious service as a member of Radiation Sciences Department Armed Forces Radiobiology Research Institute, Bethesda MD from 18 DEC 95 to 02 OCT 98.

- ***Recipient of US Navy Full-Time Outservice Ph.D. Program***

Selected among peers to attend graduate school for a Ph.D. in Medical Physics on a full-time basis for three years. This program is fully funded by the Navy.

- ***Who's Who Among Students In American Universities And Colleges***

One of only 25 selected from Jacksonville University 1983-84.

- ***Sigma Pi Sigma Honor Society, President***

1983 Selected to this National Physics Honor Society. Appointed president at USL during 1993-94.

- ***Phi Kappa Phi Honor Society***

1983 Selected member of the Jacksonville University Chapter

- ***Society Of Physics Students, President***

President of The USL chapter for 1993-94. Vice-president of the JU chapter in 1983-84.

- ***Research Assistantship Award***

Full two year tuition and stipend to attend The University of Southwestern Louisiana 1994-95.

- ***Navy Reserve Officer Training Corps Honor Society***

Last updated 11/14/2002

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Appointed member in 1982 at Jacksonville University.

- ***NROTC Full 4 Year College Scholarship Award***

Presented by the Commander of U.S. Navy Recruiting Command in 1980.

- ***Armed Forces Communications And Electronics Assn. Honor Award*** For outstanding academic achievement in 1983-84.

- ***The American Legion Silver Academic Excellence Award***

Awarded by Jacksonville Memorial Post 88 for outstanding achievement in 1983.

- ***Professor Of Naval Science Academic Excellence Award***

Presented by the Commander of the Jacksonville University NROTC unit in 1982-83.

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➤ **PUBLICATIONS AND PRESENTATIONS**

Peer-Reviewed Publications

1. "Transformation of Human Osteoblast Cells to the Tumorigenic Phenotype by Depleted Uranium-Uranyl Chloride" Alexandra C. Miller, William F. Blakely, David Livengood, Tim Whittaker, Jiaquan Xu, John W. Ejniak, Matthew M. Hamilton, Eric Parlette, Theodore St.John, Henry M. Gerstenberg, Hannah Hsu. *Environmental Health Perspectives*, V 106, No. 8 (August 1998)
2. "Electrochemical Passivity of Titanium Implanted With 1 MeV Gold Ions" Daniel P. Vollmer, James D. Garber, Gary A. Glass, Rogert D. Braun, Theodore J. St.John, and Wei-Jenq Sheu. *Corrosion Science*, Vol. 40, No. 2/3, (1998) 297-306
3. "Surface Oxygen Implanted in Titanium by Recoil Collisions With 1 MeV Gold Ions" T.J. St.John, G.A. Glass, Sr., and W.J. Sheu. *Nuclear Instruments and Methods in Physics Research* 117 (1996) 441-446

Thesis, Technical Reports, Seminars, and Posters

1. "Intensity-modulated radiosurgery treatment planning by fluence mapping optimized multi-isocenter plans" T.J. St.John*, T. Wagner, L. Bouchet, S. Meeks, F. Bova, W. Friedman. *Proceedings of the 43rd annual meeting of the American Association of Physicists in Medicine, Salt Lake City, UT, Jul 2001, pg.1256.*
2. "Dosimetry of Narrow X-ray Beams" T. J. St. John. *Presented at the Department of Nuclear and Radiological Engineering graduate seminar, University of Florida, Dec 99.*
3. "Cytotoxicity of low dose rate, low dose total body gamma irradiation on lymphocytes determined by flow cytometry" N. Ramakrishnan, V. Villa, C. Inal, V.L. Vanita, T.J. St.John, G. Vavrina, H.M. Gerstenberg, T.M. Seed. Presented at Experimental Biology (FASAB) meeting in Apr 99. Abstract published in FASEB journal 13(4): A518-A518, Part 1, Suppl. S MAR 12 1999
4. "Arrays for Use at the Cobalt Irradiation Facility, Technical Report 97-2 of the Armed Forces Radiobiology Research Institute" James C. Myska, Troy L. Adams, Ramesh C. Bhatt, John G. Broom, Christopher D. Pitcher, Frank M Sharpnack II, Theodore J. St.John, Betty Ann Torres, Gerard Vavrina, and Henry M. Gerstenberg. Sep 97
5. "Microdosimetry of Alpha Particles for *in-vitro* Human-cell Transformation Studies Using Monte Carlo Technique" T.J. St.John, A.C. Miller, R.C. Bhatt, B.A. Torres, and H.M. Gerstenberg. *Proceedings of Uniformed Services University of the Health Sciences Research Day 1997, Bethesda, MD, Mar 97 pg. 187*

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6. "Microdosimetry of Alpha Particles for *in-vitro* Human-cell Transformation Studies Using Monte Carlo Technique" T.J. St.John, A. C. Miller, R.C. Bhatt, B. A. Torres, and H.M. Gerstenberg. *Seminar presentation at the Armed Forces Radiobiology Research Institute, Bethesda, MD, Apr 97*
7. "Microdosimetry of Alpha Particles for *in-vitro* Human-cell Transformation Studies Using Monte Carlo Technique" T.J. St.John, A. C. Miller, R.C. Bhatt, B. A. Torres, and H.M. Gerstenberg. *Proceedings of the 45th Annual Meeting of the Radiation Research Society, Providence R. I. May 97 PO6-134*
8. "A Monte Carlo Calculation Approach to Microdosimetry of Alpha Particles From Depleted Uranium: Human-Cell Transformation *In-Vitro*." H.M. Gerstenberg, T.J. St.John, R.C. Bhatt, C.D. Pitcher, B. A. Torres, G. Vavrina, A. C. Miller, M. Hamilton, J.Ejnik, J.W. Malinoski. *Presented at NATO Research Study Group 23, Grenoble, France, May 97*
9. "Surface Oxygen Implanted in Titanium by Recoil Collisions With 1 MeV Gold Ions" Theodore J. St.John, *A Master's degree Thesis presented to the graduate faculty of the University of Southwestern Louisiana, Summer 95*
10. "Ion-Beam Analysis Techniques Used at Acadiana Research Laboratory for Materials Research" T.J. St.John and G. A. Glass, Sr., *Presented at the U.S. Department of Energy and Experimental Program to Stimulate Competitive Research (DoE/EpSCoR) Conference, Lafayette, LA, Jun 1995*
11. "Implanted Ion Profiles Using Rutherford Backscattering Spectrometry (RBS)" T. J. St.John, and G. A. Glass, Sr., *Presented at the Louisiana Academy of Sciences Annual Meeting, Ruston, LA, Feb 1995*
12. "Scanning Tunneling Microscopy (STM) Analysis of Polished Titanium Surfaces" K. S. Niolon, T. J. St.John, and G.A. Glass, Sr., *Presented at the Louisiana Academy of Sciences Annual Meeting, Ruston, LA, Feb 1995*
13. "Ion-Beam Analysis Techniques Used at Acadiana Research Laboratory for Materials Research" T.J. St.John and G. A. Glass, Sr., *Presented at the U.S. Department of Energy and Experimental Program to Stimulate Competitive Research (DoE/EpSCoR) Conference, New Orleans, LA, Jun 1994*
14. "Rutherford Backscattering Spectrometry System for Thin Film Analysis" T. J. St.John and G. A. Glass, Sr. *Presented at the Louisiana Academy of Sciences Annual Meeting, Lake Charles, LA, Feb 1994*
15. "Helmholtz Coil System for Low Energy Electron Spectroscopy" N. B. Burgess, D. Soileau, T. J. St.John, and G. A. Glass, Sr. *Presented at the Louisiana Academy of Sciences Annual Meeting, Lake Charles, LA, Feb 1994*